REMARKS

Claims 1-16 remain withdrawn from consideration as being drawn to a non-elected invention. By this Amendment, claims 17, 18 and 26 are amended to further clarify the claimed subject matter by specifying that the composite comprises discrete nanotubes coated in the electronically conducting polymer (as previously requested by the Examiner). Basis for these amendments is found in the application at page 28, lines 24 to 26, which states that "there must be a polymer coating on the surface of each nanotube" and page 37, lines 15 to 17 which refers to "a composite in which individual carbon nanotubes are coated by a thick layer of polymer."

As a preliminary matter, Applicants submit that the photographs previously submitted were obtained by electron microscopy, which produces black and white images; thus, it is not possible to submit corresponding colored images.

Claims 17-24 and 26 have been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,205,016 to Niu. Applicants traverse the rejection because Niu fails to teach or suggest all the features recited in the rejected claims.

For example, Niu fails to teach or suggest an electronically conducting polymer/carbon nanotube composite produced by preparing a dispersion of carbon nanotubes in a solution of one or more polymerisable monomers which upon polymerisation form an electronically conducting polymer; and polymerising the monomer solution to form a unitary polymer mass containing discrete nanotubes individually coated in the electronically conducting polymer," as recited in independent claim 17.

Similarly, Niu fails to teach or suggest an electrical energy storage device, comprising: a first electrode consisting of a first composite of carbon nanotubes and a first electronically conducting polymer and a first conducting member in contact with the first composite; a second electrode; and an electrolyte comprising mobile cations and anions, the electrolyte separating the first and second electrodes and being in contact with the first composite, wherein the first composite consists of a unitary polymer mass containing discrete carbon nanotubes individually coated in the electronically conducting polymer dispersed therein and is formed by preparing a dispersion of carbon nanotubes in a solution of one or more polymerisable monomers which upon polymerisation form an electronically conducting

polymer and polymerising the monomer solution to form the unitary polymer mass, as recited in independent claim 18 and its dependent claims 19-24.

Further, Niu fails to teach or suggest an electrical energy storage device comprising: a first electrode comprising a first composite of carbon nanotubes and a first electronically conducting polymer, and a first conducting member in contact with the first composite; a second electrode comprising a second composite of carbon nanotubes and a second electronically conducting polymer, and a second conducting member in contact with the second composite; and an electrolyte comprising mobile cations and anions, the electrolyte separating the first and second electrodes and being in contact with the first composite, wherein each of the first and second composite consists of a unitary polymer mass containing carbon nanotubes individually coated in the electronically conducting polymer dispersed therein and is formed by preparing a dispersion of carbon nanotubes in a solution of one or more polymerisable monomers which upon polymerisation form an electronically conducting polymer; and polymerising the monomer solution to form a unitary polymer mass," as recited in independent claim 26.

As indicated previously, Applicants replicated the process of Niu in the laboratory and performed comparative experiments to compare between the method of the invention and that of Niu to highlight the differences between the product produced by the claimed method and the product produced by the method of Niu. As a result, Applicants submitted photographs indicating the structural differences resulting from the two significantly different methods.

In response, the Advisory Action objected that the experimental protocol used in replicating Niu's process was unsatisfactory, asserting that Niu teaches, at col. 9, line 53, that carbon nanotubes are dispersed in the conducting polymer matrix when the nanotube content is low, and that the experimental protocol did not indicate the relative amounts of nanotubes and conducting polymer. Therefore, the Advisory Action asserted that it was possible that, if the Applicant's replication of Niu's process was repeated with a higher ratio of conducting polymer to nanotubes, the product of the current invention would be produced.

However, the concentration of the nanotube suspension used in replicating Niu's process was 0.4 wt%, which means that the mass ratio of polypyrrole to carbon nanotubes was 12.5 : 1. It is not possible to use a higher ratio of conducting polymer to nanotubes, because such a ratio results in blocking of the filter pores during the filtration step.

Further, Niu fails to provide any examples relating to carbon nanotube/conducting polymer composite with which the mass ratio of polypyrrole to carbon nanotubes of 12.5 : 1 used by the applicants can be compared. However, in the examples of Niu, the ratio of the non-nanotube component (RuO_2xH_2O, activated carbon or NiO) to carbon nanotubes is not more than 3:1. Thus, the ratio used by the applicants is a high ratio of conducting polymer to nanotubes, as discussed by Niu at col. 9, line 53.

Accordingly, the Advisory Action's objection is unjustified. Thus, Applicants maintain that one difference between Niu's process is that Niu merely mixes existing polymer with nanotubes, while the claimed invention forms polymer around a nanotube skeleton. The passages of Niu in col. 9 to which the Office has referred provide no teaching or suggestion that individually coated nanotube would be formed if certain ratios of conducting polymer to nanotubes were used. Therefore, the difference between the two products can be readily recognized by viewing the experimental images previously submitted to the Office.

Furthermore, one of ordinary skill in the art would have recognized that the method of Niu would not have provided individually coated nanotubes, because the conducting polymer is merely suspended and not dissolved. Thus, in Niu, the conducting polymer is never in a form where it could form a thin coating around the nanotubes.

Accordingly, Applicants again submit that discrete nanotubes coated in conducting polymer can be seen in the product produced by the method of the present invention, while the product of Niu's method does not contain visible coated nanotubes.

In view of the differences between the products of Niu and of the present invention, the claims are novel over Niu. Accordingly, it is submitted that the claims are allowable over Niu and that the application is in condition for allowance. Should further issues require resolution prior to allowance, the Examiner is requested to contact the undersigned.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,
PILLSBURY WINTHROP LLP

CHRISTINE H. MCCARTHY
Reg. No. 41844
Tel. No. (703) 905-2143
Fax No. (703)905-2500

Date: February 9, 2004
P.O. Box 10500
McLean, VA 22102
(703) 905-2000